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MONTANA GIS NEWS

The Newsletter of the Montana GIS Users' Group

Fall 1997

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Statewide 7.5 Minute DEMs Slated For Completion

Member's of the Montana GIS Technical Working Group (TWG) learned at their August 5th meeting that their long quest to secure completion of 7.5 minute Digital Elevation Models for the entire state is almost a reality. At the meeting Lance Clampitt, US Geological Survey (USGS) National Mapping Division (NMD), announced that NMD has decided to use discretionary funds to complete all but a few of the remaining 7.5' DEMs. Subsequently Lance learned NMD will be completely finishing them. There are 3018 7.5 minute quads in Montana. Lance projected DEMs will start becoming available in November of 1997 with the last ones being completed sometime the middle of 1998. This development came on the heels of a joint proposal under the Department of Interior (DOI) High Priority Mapping Program from Kathy Jewell, Bureau of Land Management (BLM) and the TWG that was not funded, and meetings with members of the TWG and Senator Burns staff on the issue of DEM completion. While these efforts did not directly lead to funding, they may have contributed to NMD's decision.

Background

Digital Elevation Models (DEMs) are digital records of terrain elevations for ground positions at regularly spaced intervals. Grid spacing of 90 and 30 meters is most common, but recently DEMs with 10 meter grid spacing are being developed. A 30 meter DEM is prepared by scanning a 7.5 minute topographic map and sampling elevations at positions on a grid with a spacing equal to 30 meters on the ground. There are 3,018 7.5 minute quadrangles that cover the state of Montana. The U.S. Geological Survey, the Defense Mapping Agency, and the U.S. Forest Service are the primary developers of DEMs.

DEMs are used in GIS systems to develop slope, aspect, and contour databases. They are also used in visibility analysis, analysis of vegetative communities, watershed modeling, and perspective view map development. DEMs are also a required input for the development of digital orthophoto quads.

(DEMs Continued on Page 2)

Metadata Satellite Videoconference to be Held on October 15

Many state and local governments are moving from the purchase of GIS hardware and software and the associated development of spatial databases to the application of GIS to decision-making. As GIS applications and spatial data sharing become more prevalent, the importance of documenting the content, quality, and lineage of spatial data becomes more apparent. Interest in metadata ("data about data") is moving beyond the federal government to the broader GIS user community.

To address concerns about metadata implementation, a two-hour satellite videoconference titled "A Practical Guide to Metadata Implementation for GIS/LIS Professionals" will be held October 15 from 12:00 to 2:00 p.m. The program is sponsored by the National States Geographic Information Council (NSGIC) with funding from the Federal Geographic Data Committee (FGDC). The program is being designed by the Land Information and Computer Graphics Facility (LICGF) at the University of Wisconsin-Madison and produced by the UW-Extension Cooperative Extension Distance Learning Unit.

Topics that will be covered as part of the satellite videoconference include a description of metadata and why it is important, an overview of the Content Standards for Digital Geospatial Metadata, an explanation of how to get started with metadata creation, an overview of general characteristics of metadata creation tools and examples of specific tools, an illustration of the State of Minnesota's experience with metadata implementation, and a presentation on the utility of metadata using the example of the Montana State Library NSDI Node. Participants will have an opportunity to ask questions of presenters during two 15-minute question-and-answer sessions.

Local down link sites are setup in Helena and Bozeman. For the Helena location contact: Pam Smith at (406) 444-5354, psmith@nris.mt.gov. For Bozeman contact Gretchen Burton at (406) 994-6921, burton@guava.giac.montana.edu.

(DEMs continued from Page 1)

Coordination

Montana's TWG is charged with coordinating inventories of digital data in Montana. The interagency Memorandum of Understanding that created the TWG, outlined the following objectives: to establish a cooperative effort to share digital data among the participating agencies and organizations; to make available all relevant, public domain, digitized databases managed by participating agencies; to develop priorities for joint GIS development efforts and projects; and to investigate opportunities for jointly funded projects designed to create statewide, base map themes for Montana.

TWG's work on the 30 meter DEM effort started in 1993. US Forest Service's (USFS) TWG representative, Daryl Enger(now retired) took the lead in inventorying the DEMs available at that time. He found that DEMs were available for most of the western third of the state, but were not available for much of eastern Montana. Daryl also found that there had been a considerable amount of duplication of effort by individual agencies. Frequently an agency that needed a DEM would request that one be developed without first checking to see if another agency had already developed it. With the inventory complete, it was possible to coordinate efforts to fill in the gaps.

For the next three (3) years, the TWG wrestled with the DEM effort, with several agencies acquiring a few DEMs at a time. In Montana, development of other statewide coverages was taking place but at a scale of 1:100,000. It was somewhat overwhelming to think of developing statewide coverages at a scale equivalent to that for a USGS 7.5 minute quadrangle, 1:24,000.

In late 1995, about 738 DEMs remained to be developed for Montana. Furthermore, Roly Redmond and staff at the University of Montana's Spatial Analysis Lab identified a large number of the existing DEMs that had problems such as striping, spikes, holes, and bad lakes.

The cost to develop a DEM for a single 7.5 minute quadrangle is about $450. Until 1995, most DEM development was funded through federal agencies, primarily the USGS, USFS, and BLM. In October 1996, USGS and USFS had an additional 118 DEMs authorized and funded, but about 628 remained to be done. Lance Clampitt (USGS) then proposed a 50-50 cost share between USGS and the agencies comprising the TWG. The Department of Fish Wildlife and Parks and the Facility Siting Bureau at the Department of Natural Resources and Conservation (now part of the Department of Environmental Quality) provided matching funds to develop about 30 DEMs to fill gaps in the western part of the state, but it appeared that it would be a long wait for funds to become available for remaining DEMs in eastern Montana.

Late last winter, Kathy Jewell (BLM) proposed a possible source of funding from within the Department of Interior (DOI) to complete most all DEMs in Montana. The proposal was submitted to DOI on behalf of TWG agencies. Progress of this project was reported at the GIS Users' conference last spring. Initially, prospects for the proposal being funded looked good. However, there was stiff competition for DOI funding from high profile projects around the country and Montana had not ranked high enough to be in the money. Kathy spearheaded a last minute effort to obtain endorsements from a variety of state and federal agencies to help move us up in the final rankings and secure funding for the remainder of the DEMs. Letters of support from state and federal agencies and staff from our congressional delegation were pooled and submitted to the federal reviewers. Although the proposal wasn't funded through DOI, enough focus had been placed on the issue that USGS decided to fund the project independently. Besides developing the new DEMs, USGS will update some of the older DEMs and those with the problems mentioned earlier.

DEMs can be ordered from USGS or can be obtained through a request to the Montana Natural Resources Information System (NRIS). Roly Redmond has provided NRIS the DEMs obtained during the Gap Analysis Project. These DEMs have been paneled together into files equivalent to 1:100,000 scale quad maps and are available on CD-ROM. It is anticipated that NRIS will serve as a clearinghouse for the new DEMs as they are produced.

The 30-meter DEM coverage is nearly complete for Montana. The cost for completion would have been too great for any single agency in a time when budgets are limited. Development of the DEMs has been accomplished through a cooperative effort of many individuals and agencies. We hope this spirit of cooperation will continue as other statewide coverages are developed.

Metadata Coordinator for Montana

A new service to help any organization in Montana with implementing metadata has recently been inaugurated by the Montana Natural Resource Information System (NRIS).

Goals for the new service include:

- Ensure that an active inventory on Montana spatial data is created and maintained;
- Facilitate the transfer of documentation to Internet servers and other distribution mechanisms where the appropriate audiences may access them;
- Assure that tools and materials that facilitate the entry, maintenance, and dissemination of metadata are readily available to GIS practitioners in Montana;
- Track national metadata implementation efforts so that Montana can benefit from them where appropriate.

Services provided by the Metadata Coordinator:
The primary mission of the Metadata Coordinator will be to take whatever actions are necessary to facilitate and promote the entry, maintenance, and access to metadata. Since GIS is a very broad discipline and is implemented on a variety of hardware/software platforms, the services provided to organizations will vary.

Some specific services will include:

- Providing metadata tools and training specific to the use of those tools;
- Training on the conceptual design of the Federal Geographic Data Committee Metadata Standard;
- Training and assistance with implementing Internet servers used for providing access to metadata;
- Assisting in formatting files for placement on Internet servers;
- Assisting in entry of metadata records;
- Assisting organizations in understanding and implementing the FGDC Metadata Standard; and,
- Assisting in development of tools to facilitate the entry of metadata.

For further information, contact Pam Smith at 406-444-5354 or psmith@nris.mt.gov.

Montana Geographic Information Council is Formed

Effective September 9, 1997 Governor Mark Racicot signed Executive Order No. 17-97 creating the Montana Geographic Information Council. The following individuals were appointed to that council:

Ms. Lois Menzies, Director, Montana Department of Administration
Ms. Karen Strege, State Librarian, Montana State Library
Ms. Mary Bryson, Director, Montana Department of Revenue
Mr. Don Childress, Administrator, Wildlife Division, Department of Fish, Wildlife & Parks
Mr. Jon Sesso, Director, Butte-Silver Bow Planning Department
Mr. Harold Blattie, Commissioner, Stillwater County
Mr. Steve Hellenthal, Manager, Yellowstone County Data Processing
Mr. Lance Clampitt, USGS National Mapping Division
Mr. Steve Solem, Director, Information Management Department, U.S. Forest Service, Northern Region
Mr. Dan Mates, Chief, Montana Cadastral Survey, Bureau of Land Management
Mr. Dan Sullivan, Vice President, Montana Power Company
Mr. Stuart Blundell, President , Integrated GeoScience
Mr. Steve Fourstar, Natural Resource Specialist, Bureau of Indian Affairs
Mr. Richard Aspinall, Director, Geographic Information and Analysis Center

All appointees will serve a 2-year term ending September 9, 1999, at which time the Council will be terminated unless arrangements for its continuance are made. The Council will be supported by the GIS Services Section of the Department of Administration. A web page is under construction to keep GIS users across the state informed of the Council's actions.

The formation of the Council was accomplished by the hard work and input of many GIS practitioners across the state. Additional hard work will be required to define tasks and directions that this Council may take. Continued support and ideas from GIS users across the state will serve to make the Council's job more productive.

Montana/Idaho GIS Users' Conference in Butte

The 1998 Montana Idaho GIS Users' Conference will be held at the Copper King Inn in Butte, and planning is already well underway. Monday, April 27, will be a day of pre-conference workshops, before the activities officially get rolling on April 28 and 29. If there is a demand, there will be additional workshops on April 30. The theme for 1998 is: "GIS - Into the Mainstream"

Public Night, an opportunity for new or non-GIS users to find out about the technology, will be Monday night. There will be activity booths and prizes for K-12 students, as well as demonstrations for the general public. The Planning Committee invited some great keynote speakers to open the conference on Tuesday morning. After a day packed with concurrent sessions, everyone will enjoy the banquet and band on Tuesday night. The Committee hopes to bring in more nationally known speakers for plenary sessions on Wednesday before the conference officially wraps up business.

The 1998 conference is being hosted by the Butte-Silver Bow Planning Department and Montana Tech. If you would like to be involved in conference planning, contact Tom Tully at 406-723-8262 or buttegis@montana.com.

There is already a rudimentary website up. Keep an eye on it for up-to-the-minute conference details. The address is: http://mbmgsun.mtech.edu/giscon98/.

For those of you who weren't able to attend the 1997 Conference in Bozeman, there was a good deal of discussion about a permanent Montana-Idaho conference merger. The group voted to continue our efforts on a trial basis, rotating between the two states each year. Since Idaho will be hosting the Northwest Arc/Info conference in 1998, it was decided to keep the conference in Montana for one more year.

Incidently, the 1997 conference was such a terrific success, that the User's Group has been able to establish the first $10,000 endowment at Montana State University and make a good dent in the second endowment to be offered at the University of Montana. The endowment will allow one student to be awarded a $500 scholarship each year. The User's Group will offer the first scholarship at MSU in February 1998, through the Geographic Information and Analysis Center.

GIS Seminars to begin 1997-98 Season

Field work is almost over for another year, and the GIS Seminars are about to resume. The seminars have always been held once a month on Friday afternoons from September until May at the Montana State Library in Helena. This year, NRIS has been asked to offer a few presentations mid-week to accommodate travel. The presentations are generally half hour to one hour informal lectures about GIS work happening in the state, or some hot new GIS tips and tricks. The seminars are free and open to anyone who would like to attend, so if you're in the Helena area and would like to swing by the library, you're always welcome. There are many great presentations this year! If you would like more information about the Seminars or if you would like to be added to the mailing list, contact Kris Larson via email at kris@nris.mt.gov or by telephone at 444-5691.

Following is the proposed program for the 1997-1998 GIS Seminars:

* September 26 - Gerry Daumiller, Natural Resource Information System, ***Introduction to Map Objects.***
* September 30 - Ed Madej, Natural Resource Information System, ***Portable Digital Documents - Using Adobe Acrobat.***
* October 17 - Ken Wall, Geodata Services Inc, ***GIS in Ravalli County - Local Government GIS for the Have Nots@ (Rural Counties in Montana)*** .
* November 14 - Ed Madej, Natural Resource Information System, ***The Ten Commandments of ArcView.***
* January 23 - Bob Sepanski, Department of Agriculture, ***Registering Bee Hives in Montana: An ArcView/Avenue Application.***
* February 4** - Loretta Reichert and Steve Regele, Department of Environmental Quality, ***Vegetation at a Glance: A GIS Approach to Ecology.***
* February 20 - Cathy Maynard, Natural Resource Conservation Service, ***Landforms and Geology of the Northern Region - A Watershed Planning Tool.***
* March 25** - Lydia Bailey, Fish, Wildlife & Parks, ***Montana Fish, Wildlife, & Parks Layers and Activities.***
* April 15** - Cedron Jones , Montana Natural Heritage Program, ***Points to Polygons: Tracking Animal Populations in GIS.***
* May 15 - Stu Kirkpatrick, Department of Administration, ***Toward a Common Public Land Survey Database - GCDB and Beyond.***

** Not on a Friday

1998 MONTANA/IDAHO GIS CONFERENCE

April 27 - 30, 1998

Ramada Copper King Inn, Butte, Montana

Call for Abstracts

The Montana GIS Users Group invites presentation of papers, electronic demonstrations (video/software application), panel discussions and poster displays for the Tenth Annual Montana GIS Conference to be held in Butte, Montana, April 27 - 30, 1998. The preliminary schedule is:

- Pre-conference Workshops - Monday, April 27
- Keynote and Plenary addresses, Concurrent Tracks and Banquet Dinner - Tuesday, April 28
- Keynote Addresses and Concurrent Sessions all day - Wednesday, April 29

The Montana/Idaho GIS Conference attracts a wide variety of GIS Users from federal, state, and local governments, as well as from private organizations. Concurrent tracks will focus on local government, natural resources, applications, education, and special topics. Within this general context, presentations will be accepted. Topics include, but are not limited to:

- GIS in Rural Communities
- Remote Sensing & Photogrammetry
- Permitting (Mines, Dams, etc)
- Landuse (Recreation, Forestry, etc)
- GIS and Business
- Ecosystem Management
- Habitat Delineation/Modeling
- GIS Database Design & Management
- Internet & Data Repositories
- Fire Management
- Data Visualization
- Water Resources
- GIS & Related Technology
- Data Standards
- GIS User Applications
- GIS and the User Interface
- Local Government
- Parcel Delineation
- Native American Issues
- Techniques for Using GIS
- Planning and Zoning
- Education
- GPS & Surveying
- New Techniques
- Natural Resources
- Geologic Structures
- Digital Appraising

Abstracts are required for presentations, demonstrations, and panel discussion topics. An abstract submission form is included with this mailing amd may be reproduced. Abstracts must be postmarked or faxed on or before January 16, 1998. Notification of acceptance will be January 30, 1998.

The conference program and abstracts of accepted presentations will be made available on-line several weeks prior to the conference at http://mbmgsun.mtech.edu/giscon98/

For more information about the conference, contact:

Mike Frankovich
Montana Tech - College of Technology
25 Basin Creek Road
Butte, MT 59701
406-496-3745
email: mfrankovich@po1.mttech.edu

1998 Montana-Idaho GIS Conference

April 27 - 30

Ramada Copper King Inn, Butte, Montana

Abstract Submission Form

Please return this form and your abstract on or before January 16,1998 to:

Montana-Idaho GIS 1998
Montana Tech - College of Technology
25 Basin Creek Road
Butte, MT 59701
FAX: 406-496-3710

Include a digital copy of your abstract on an IBM 3.5" disk in Microsoft Word, WP 5.1+, ASCII or DOS Text File or send via email to mfrankovich@po1.mttech.edu.

Name_____Organization_____
Address_____
_____
City _____ State _____ Zip _____
Phone (____) _____-_____ Fax (____) _____-_____
Email:_____

TYPE OF PRESENTATION:
□PAPER □ELECTRONIC DEMONSTRATION □PANEL DISCUSSION □POSTER DISPLAY

(Papers and electronic discussions should be 20-25 minutes long. If you expect that you will need more time for your demonstration, please let us know.)

INTENDED AUDIENCE:
□NOVICE GIS USER □EXPERIENCED USER □ MANAGER □OTHER_____

AUDIO VISUAL NEEDS (Check all that apply):
□SLIDE PROJECTOR □OVERHEAD DISPLAY □FLIP CHART/EASEL □LCD PANEL
OTHER (please specify) _____
(LCD Panels will be provided by Cindy McIlveen. Call to confirm your reservation at 406-496-4693.)

CONCURRENT TRACK (What general topic does your abstract address? Check all that apply):
□NEW TECHNOLOGY □NATURAL RESOURCES □LOCAL GOVERNMENT
□ NATIVE AMERICAN

Abstracts should be single spaced, 200 words or less. Abstracts for papers, electronic demonstrations, and poster displays should include the title of the proposed presentation, identify its purpose, and summarize its contents. Those reporting investigative research should also describe methods and results. Abstracts for panel discussions should indicate the subject to be covered, list panel members' names, titles and organizational affiliations, and briefly describe their expertise in the area.

Notification of acceptance will be January 30, 1998. All abstract participants will be expected to register for the conference. For more information, please call Mike Frankovich at 406-496-3745.

Montana GIS Users Going Online

By Ken Wall, GeoData Services

Reprint with modifications from previous edition of Montana GIS News.

Like others around the world, Montanans are finding a wealth of valuable services, data, programs, and information on the Internet. Rapidly expanding technology is allowing us to use the Internet to dramatically change the way we share and disseminate information. However, the Internet is not just about technology and receiving information from others. The Internet is also a worldwide community, using certain standards to communicate and is composed of individuals and organizations willing to share information. Montanans are participating in this endeavor and are taking advantage of, and benefitting from, the rapidly expanding arena of the Internet.

Montana GIS Listserver

List servers allow an Internet user to send an email message to one address and have it broadcast to many different addresses of those who might be interested in the subject matter. List servers are created to facilitate communication about a given topic. In Montana, we have a list server for GIS users. If you subscribe to the list any message that is sent to the list server will be delivered to your email address. If you post a message to the list it will be sent to all the other subscribers. Typical uses of list servers are to ask a specific technical question or to announce something of general interest to the entire group. The Listserv software looks for commands in only one place, the first line of any message it receives. It does not look beyond the first line.

Here is an example of how to subscribe:
TO: listproc@listserv.umt.edu
FROM: kwall@selway.umt.edu
SUBJECT: subscribe mtgis "your name" (don't use quotes)

After you have subscribed, send all mail messages that you want the subscribers to the listserv to receive to: mtgis@listserv.umt.edu.

GIS Data

Since many GIS users are dependent on data developed by others for at least some of their applications, they tend to embrace technology that facilitates locating and acquiring GIS data. Furthermore, GIS is a rapidly expanding field where the exchange of information about technology and techniques is frequent. A wide variety of ways exist to help GIS users meet these information needs by using Internet resources.

For example, the United States Geological Survey (USGS) is providing online access to many of its small-scale GIS databases such as: 1:250,000 Digital Elevation Models (DEMs), 1:2,000,000 Digital Line Graphs (DLGs) of administrative boundaries, hypsography, and hydrography; 1:100,000 hydrography and transportation DLGs; 1:250,000 and 1:100,000 Land Use and Land Cover data; and many others. The URL for this site is: http://www.usgs.gov/data/cartographic/index.html.

The National Biological Survey (NBS) has published an interactive metadata browser for the Federal Geographic Data Committee (FGDC) Metadata Standards. This browser allows users to view the Metadata Standards in a more intuitive way and provides ready access to all components of how to document data to the Standard. The URL for this site is: http://www.its.nbs.gov/nbs/meta/meta.htm.

The Natural Resource Information System (NRIS) provides databases, metadata, and GIF files of Montana data on its Web server. NRIS also provides links to the above mentioned sources for GIS data and information as well as many others. The URL for the NRIS Web server is http://nris.mt.gov/. NRIS has also recently been adding interactive mapping applications to their web site.

One of the most interesting Montana Web sites is the USGS Montana District's. The site features streamflow data updated by satellite every fifteen minutes, historical streamflow data, and the ability to build on-the-fly hydrographs for a specific monitoring station for a given period of interest. The URL for this site is: http://wwwdmthln.cr.usgs.gov/.

The Geographers Craft web site from the University of Texas at Austin provides some excellent resources for GIS professionals. The section on GPS is especially comprehensive. The URL for this site is: http://www.utexas.edu/depts/grg/gcraft/contents.html

The Montana GIS Users' Group awarded a $1000 grant to Corvallis High School to fund the development of a K-12/GIS oriented web site. The URL for this site is http://www.montana.com/chs/gis/.

Conclusion

The Internet is changing the way in which we communicate and share information by lowering barriers. By taking advantage of the new freedom and opportunities afforded us by these lowered barriers we can do our jobs and serve our clients in new and better ways. However, we must remember that the continued success of the Internet requires that we are willing to give back to the online community in those areas where we have expertise, or where we have resources that others can use.

GIS CONFERENCES

October 1-4, **High on Energy GIS & GPS Global Innovative Solutions 1997.** Calgary Alberta, Contact: 403-451-5670.
October 15, **A Practical Guide to Metadata Implementation for GIS/LIS Professionals: a National Satellite Video conference.** Madison, WI, Contact: 608-263-5534.
October 15-18, **Conference on Spatial Information Theory.** Laurel Highlands, PA, Contact: 412-624-9434.
October 26-30, **GIS/LIS 1997.** Cincinnati, OH, Contact: 301-493-0200.
October 30-Nov. 2, **Third International Symposium on GIS in Higher Education (GISHE '97)** Chantilly, VA, Contact: 410-830-2964.
November 12-15, 1997 **Applied Geography Conference.** Albuquerque, NM, Contact: 817-565-2091
January 26-29, 1998 **Tailings and Mine Waste '98.** Fort Collins, CO Contact: 970-491-6081
April 27-30, 1998 **MT/ID GIS Users' Group Conference.** Butte, MT, Contact:406-444-5357.

GIS TRAINING

October 2-4, **Customizing ArcView with Avenue,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
October 7-11, **ARC/INFO Database Design,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
October 28-Nov 1, **Intro to GIS,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
November 14-15, **Intro to ArcView,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
November 18-20, **Arc Macro Programming,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
November 21, **Intro to Coordinate Geometry,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
November 22, **Intro to Dynamic Segmentation,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
December 2-3, **Intro to ArcView,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.
December 4-6, **Customizing ArcView with Avenue,** Utah Automated Geographic Reference Center, Contact: 801-538-3164.

Montana GIS Users' Group
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